

REMARKS

Claims 1-3 and 5-7 are currently pending in this application. Receipt of the Advisory Action dated December 16, 2009 is acknowledged and appreciated. By this amendment, claims 1, 5, and 7 are amended. Support for the amendments is found in the specification, including the claims, as originally filed. No new matter has been introduced. Favorable reconsideration of the application in light of the foregoing amendments and following comments is respectfully solicited.

In section 5 of the Office Action, claims 1-3 and 5-7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,735,230 (Tanabe) in view of U.S. Patent App. Pub. No. 2002/0021275 (Abe). Applicants respectfully traverse.

Claim 1

Independent claim 1 recites, *inter alia*,

the first and second electrode pads are formed to extend farther behind the two-beam semiconductor laser element, and are wire-bonded behind the two-beam semiconductor laser element, at positions directly behind the two-beam semiconductor laser element with respect to a laser-light-emitting direction of the two-beam semiconductor element.

FIG. 4 of this application illustrates a non-limiting embodiment of the above limitations, in which wires 14 and 16 are bonded at positions directly behind the two-beam semiconductor laser element LDC with respect to a laser-light-emitting direction of the two-beam semiconductor element LDC. The wires 14 and 16, which are short, extend backward to be connected to the frames 25 and 26 disposed behind the submount 63. This makes it possible to reduce the distance by which the electrode pads 64 and 65 project to the sides of the two-beam

semiconductor laser element LDC. This helps reduce the lateral width of the semiconductor laser device, making it more compact. *See also* FIGS. 1 and 2.

In contrast, in Tanabe, electrode pattern 34 is at a side of LD chip 30. As a result, and as shown in Tanabe, FIG. 9(b), the position on electrode pad 34 at which gold wire 38 is bonded to wire-bond the electrode pad 34 is not directly behind LD chip 30 with respect to a laser-light-emitting direction of LD chip 30. Gold wire 38 extends to the side of the electrode pad 34 to be connected to lead 45 that is disposed to the side of sub-mount 31. This results in increased lateral width for the Tanabe device. For at least the above reasons, Tanabe does not disclose, suggest, or otherwise render obvious the “first and second electrode pads” recited in claim 1. Abe does not bridge this gap between claim 1 and Tanabe. Thus, independent claim 1 is not rendered obvious by the cited art. Accordingly, Applicants respectfully request withdrawal of the rejection of independent claim 1, and claims 2, 3, 5, and 7 which depend thereon.

Claim 6

Claim 6 recites, *inter alia*, “the two-beam semiconductor laser device is built as a three-terminal two-beam semiconductor laser device having only three terminals.” Section 10 of the Office Action asserts

... Tanabe et al disclose wherein the semiconductor laser device is built as a three-terminal semiconductor laser device having only three terminals (44-46, col. 25 lines 65-67).

In the after-final Response filed on December 3, 2009, Applicants explained that although the Tanabe device shown in FIG. 9 has three terminals (44, 45, and 46), Tanabe is merely a single-beam laser device, rather than the recited two-beam laser device, and that another fourth terminal would be needed to drive an additional second laser diode – just as shown with respect to the CAN-packaged two-beam device in Abe, FIG. 8A.

Section 4 of the Advisory Action disagreed with Applicants' remarks, asserting . . . it would not have required an additional lead for an additional laser diode. As shown in Figure 7 of Abe, there are only three leads 46a, 13c, & 13b required to supply drive current to the laser diode. This implies that the combination would also only require three leads.

However, the Examiner's argument ignores the fact that although Abe, FIG. 7 shows a laser diode 14a with three leads, the device shown in FIG. 8A, comprising laser diode 14a and terminals 22, has four terminals, as one terminal is connected to PIN diode 12 (*see* Abe, paragraph [0137] and corresponding FIG. 8A; *see also* page 3 of the Declaration Under 37 C.F.R. § 1.132 filed on February 19, 2009 (explaining that an electrode of PIN diode 12 is connected to one of the terminals shown in Abe, FIG. 8A)). Abe, paragraph [0140] explains why PIN diode 12 is used in the device – because

The PIN diode 12 is configured to sense laser lights emitted to a rear side of the first and second laser diodes (LD1 and LD2), measure their strengths, and control the drive currents of the first and second laser diodes (LD1 and LD2) so that the strengths of the laser lights become constant, that is, for APC (automatic power control).

(emphasis added)

Likewise, the device shown in Tanabe, FIG. 9 includes monitor-use light-receiving element 47, which is connected to terminal 46. Tanabe, col. 26, lines 3-6, explains that “[t]his monitor-use light-receiving element 47 is used for monitoring the variation in the output of the LD chip 30, and adjusts the driving power of the LD chip 30 so as to be always maintained constant” *(emphasis added)*.

Thus, *both* Abe and Tanabe, which the Office Action proposes to combine, teach semiconductor laser devices that each include an terminal connected to a photodiode for measuring the output of the laser diodes so that the strength of the laser output is constant. Neither the Office Action nor the Advisory Action adequately explains why, *in view of these*

teachings which commonly rely on a photodiode packaged with the laser diode to ensure constant output strength, one of skill would have sought to eliminate the fourth terminal provided in Abe, FIG. 8A, and its corresponding connection to the photodiode. Rather than being based on evidence of the state of the art at the time of invention provided by the prior art, the modification of the teachings of Abe and Tanabe proposed by the Advisory Action appears to be the product of improper hindsight. Applicants respectfully submit that the cited art teaches a terminal is included in the device for a photodiode, and does not render obvious the recited “two-beam semiconductor laser device having only three terminals.” Thus, in addition to the reasons discussed above with respect to independent claim 1, claim 6 is further nonobvious over the cited art. Accordingly, Applicants respectfully request withdrawal of the rejection of claim 6.

In view of the foregoing remarks and accompanying declaration, Applicants respectfully submit that the instant application is in condition for allowance, and respectfully request the Examiner’s favorable reconsideration as to allowance, and withdrawal of any rejections of the pending claims. If the Examiner believes a telephone conference would expedite prosecution of this application, please contact the Applicants’ representative listed below.

Application No.: 10/575,680

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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